



[REDACTED]
Broussard, Louisiana 70518
[REDACTED]

25Apr2019
N395AE SN 45551
Accident investigation
To whom it may concern,

Aircraft N395AE was brought by trailer to Arrow Aviation 23Apr2019 to provide place and personnel to assist NTSB and Rolls-Royce personnel in the investigation of cause. N395AE was removed from trailer and quarantined until 24Apr2019 at which time all personnel representing NTSB, FAA, Rolls-Royce, AirEvac and Arrow Aviation met and discussed the direction of the work to be performed. Arrow Aviation personnel initially began by taking fuel sump sample, removed all cowling, applied power and noted stored information on Diamond J TOT indicator. Engine oil and fuel filter samples were taken and the fuel tank had ample fuel although gauge was currently frozen at 0. This was followed by the removal of all cowling. Visual inspection determined that all connections were secure and that there were no obvious signs of FOD or catastrophic engine failure. Rotation of the compressor/gp turbine and pt turbine/ main driveshaft was accomplished with no discrepancies. Discussion occurred and it was determined to remove the engine for test cell run and observation. Engine was removed, prepared for run and secured in test cell where it was quarantined until the next day.

On 25Apr2019 morning the engine fuel system was bled and start was attempted with an initial indication of unusually high advancing TOT and aborted. After another aborted start the fuel nozzle spray pattern and installation depth were checked and found to be normal. The third start was attempted and completed to idle characteristics. It was noted that the TOT and compressor vibrations were both higher than normal. There was no load currently being applied by the test cell. The throttle was advanced to see if 100% np could be reached and load could be applied. At approximately 70-75% np there was an increasingly louder deep buzzing noise and significantly higher and out of limit compressor imbalance level. The engine was brought back to idle and appropriately shut down. The decision was made to remove the engine from test cell, remove and disassemble compressor sn CAC91709.

Upon disassembly it was noted that diffuser assy pn 23051119AL, sn AEC12-070 had failed with the front shield totally unbonded from the vanes of the assembly. There were no other apparent signs of FOD or failure in the compressor.

[REDACTED]
Tim Ivanoff
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